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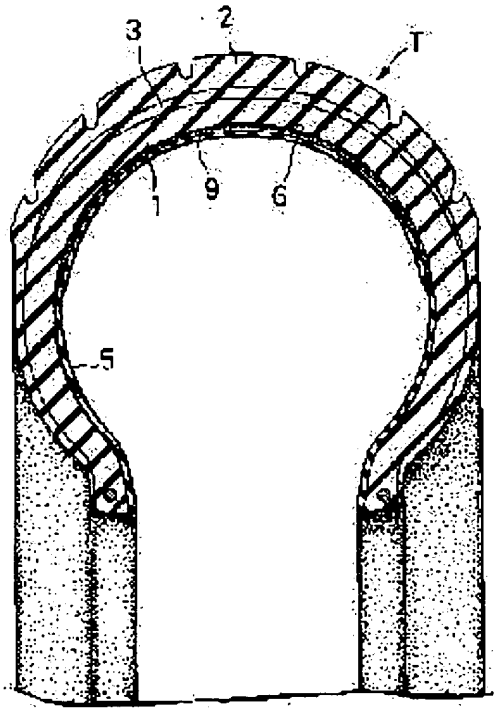
(54) MANUFACTURE OF TIRE PROVIDED WITH SEAL LIQUID LAYER

(57)Abstract:

PURPOSE: To facilitate the forming of seal liquid layer, containing no gas and high in self-sealing property, on the inside of the tread of a tire without being affected by heat upon vulcanizing and molding the tire.

CONSTITUTION: Upon vulcanizing and molding a tire T, a bag type unit 6, under closely contacted condition, is formed between a carcass 1 and an inner liner 5, connected to the internal peripheral surface of the same, while coating mold releasing agent 9 on the closely contacted surfaces, and seal liquid is injected into the bag type unit 6 after the vulcanizing and molding to form a seal liquid layer.



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審査請求　未請求　請求項の数１　ＯＬ　（全 5 頁）

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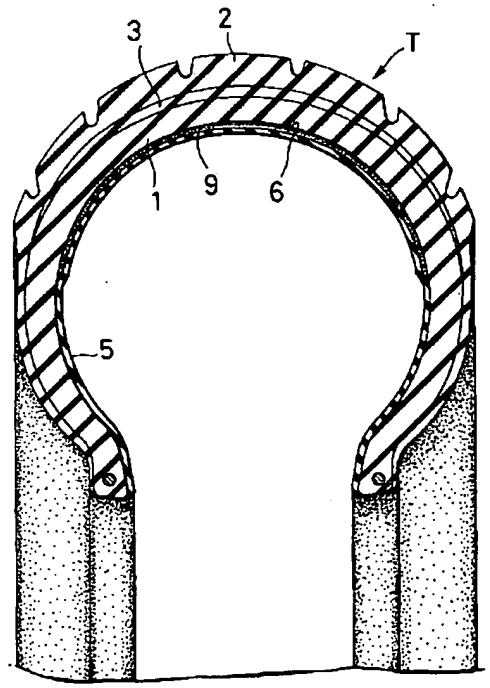
(54)【発明の名称】　シール液層付タイヤの製造方法

(57)【要約】
【目的】　タイヤの加硫成形時の熱に影響されることなく、ガスを含まない自封性の高いシール液層をトレッドの内側に形成し得るようにする。
【構成】　タイヤＴの加硫成形時、カーカス１とその内周面に接合されるインナライナ５との間に密着状態の袋状部６を、その密着面に離型剤９を塗布することにより形成し、加硫成形後に、上記袋状部６にシール液を注入してシール液層を形成する。



1

【特許請求の範囲】

【請求項1】　トレッド（2）の内側に輪状のシール液層（S）を配設した、シール液層付タイヤの製造方法であって、

タイヤ（T）の加硫成形時にトレッド（2）の内側に対向面を密着させた袋状部（6）を形成し、加硫成形後、その袋状部（6）にシール液を注入してシール液層（S）を形成することを特徴とする、シール液層付タイヤの製造方法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、トレッドの内側に輪状のシール液層を配設し、釘等によるトレッドの刺傷をシール液層のシール液をもって自封し、刺傷からの空気の漏出を極力遅らせるようにしたシール液層付タイヤの製造方法に関する。

【0002】

【従来の技術】従来、シール物質層付タイヤとして、カーカスプライ内側面に配設される二層の加硫可能なゴム組成物層の間にシール物質層を介在させたものが知られている（例えば特開平4－286631号公報参照）。

【0003】

【発明が解決しようとする課題】このようなシール物質層付タイヤにおけるシール物質層は、生タイヤの成形段階で形成しなければならないため、タイヤの加硫成形時に高熱（約180℃）を受けてガスを発生し、そのガスがシール物質層の自封性のみならずタイヤ性能（剛性、耐久性等）に悪影響を及ぼす虞れがある。またシール物質層は、タイヤの使用温度の高低に拘らず常に良好な自封性を発揮するためには、常に比較的低く安定した粘度を維持することが要求されるところ、その物性を得るために配合される成分が前記加硫成形時の熱により変質等の悪影響を受ける虞れもある。

【0004】本発明は、かゝる点に鑑みてなされたもので、シール層の形成に袋状部とそれに注入されるシール液を用い、そのシール液の自封性やタイヤ性能に悪影響を及ぼさず、また加硫成形時の熱を考慮することなくシール液の自由な選定が可能なシール液層付タイヤの製造方法を提供することを目的とする。

【0005】

【課題を解決するための手段】上記目的を達成するために、本発明は、タイヤの加硫成形時にトレッドの内側に対向面を密着させた袋状部を形成し、加硫成形後、その袋状部にシール液を注入してシール液層を形成することを特徴とする。

【0006】

【作用】上記特徴によれば、タイヤの加硫成形時、袋状部は密着状態であるから内部にガスが発生しない。そして加硫成形後、密着状態の袋状部にシール液を注入するので、ガスを含まない自封性の高いシール液層を得ることができ、しかも加硫成形時の熱を考慮することなく所望のシール液の使用が可能となる。

2

【0007】

【実施例】以下、図面により本発明の実施例について説明する。

【0008】先ず図1及び図2に示す本発明の第1実施例より説明する。図1は本発明方法により製造したシール液層付タイヤの構造を示す。同図において、タイヤTはチューブレス型であり、1はカーカス、2はその外周にブレーカ3を挟んで形成されるトレッドを示す。カーカス1と、その内周面に接合されるインナライナ5との間には、トレッド3の横幅に略対応して広がる密閉された輪状の袋状部6が画成され、その内部にシール液を注入して輪状のシール液層Sが形成される。

【0009】このタイヤTは、車輪リムRに装着されたとき、それとの間に空気室7を画成するもので、この空気室7に車輪リムRの空気弁8を通して空気が充填される。

【0010】而して、車両の走行中、釘等がタイヤTのトレッド2、カーカス1、シール液層S等を貫通して空気室7まで達すると、シール液層Sの自封作用により釘等によるタイヤ各部の刺傷が埋められ、刺傷からの空気の漏出を大幅に遅らせることができる。

【0011】さて、上記のようなシール液層Sを備えたタイヤTの製造方法について説明する。

【0012】先ず、図2に示すように、生タイヤの成形工程において、カーカス1の内周面にインナライナ5を重ね合せるとき、カーカス1及びインナライナ5の対向面にトレッド2の略横幅領域に亘りタルク等の離型剤9を塗布する。そして、この生タイヤを加硫成形すると、カーカス1及びインナライナ5は、離型剤9の塗布部を残して相互に接着され、離型剤9の塗布部が密閉且つ密着状態の袋状部6となる。したがってこの袋状部6にガスは発生していない。

【0013】次いで、注射器等を用いて袋状部6にシール液を規定量注入して袋状部6を所定厚さに膨ませ、シール液層Sを形成する。こうして図1のタイヤTを得る。

【0014】このように、タイヤTの加硫成形後に、密着状態の袋状部6にシール液を注入してシール液層Sを形成するので、ガスを含まない自封性に優れたシール液層Sが得られる。しかも使用するシール液は、加硫成形時の熱による変質を心配することなく、希望する物性のものを自由に選定することができる。

【0015】次に、図3及び図4により本発明の第2実施例について説明する。尚、図中、前実施例と対応する部分には、それと同一の符号を付す。

【0016】先ず、図4に示すように、生タイヤの成形工程において、インナライナ5の内周面にサブライナ10を重ね合せるとき、それらの対向面にトレッド2の略

横幅領域に亘り離型剤９を塗布する。これを加硫成形すると、インナライナ５及びサブライナ１０間の離型剤９を塗布した部分により密閉且つ密着状態の袋状部６が形成される。次いで、この袋状部６にシール液を規定量注入することにより、図３に示すようなインナライナ５内周面にシール液層Ｓを配設したタイヤＴが得られる。

【００１７】次に、図５及び図６により本発明の第３実施例について説明する。尚、図中、前記第１実施例と対応する部分には、それと同一の符号を付す。

【００１８】先ず、図６に示すように、生タイヤの成形工程において、カーカス１を構成すべく複数のコード層１２，１２…を積層するとき、或る隣合う２枚のコード層１２，１２の対向面にトレッド２の略横幅領域に亘り離型剤９を塗布する。そして、この生タイヤを加硫成形すると、２枚のコード層１２，１２間の離型剤９を塗布した部分により密閉且つ密着状態の袋状部６が形成される。

【００１９】次いで、この袋状部６にシール液を規定量注入することにより、図５に示すようなカーカス１内にシール液層Ｓを配設したタイヤＴが得られる。

【００２０】次に、図７及び図８により本発明の第４実施例について説明する。尚、図中、前記第１実施例と対応する部分には、それと同一の符号を付す。

【００２１】先ず、図８に示すように、生タイヤの成形工程において、インナライナ５の内周面に、内面全体に離型剤９を塗布して、相対向面が密着するように潰した加硫ゴム製のチューブ１３をトレッド２の略横幅領域に亘り重ね合せる。この生タイヤを加硫成形すると、チューブ１３はインナライナ５に接着されると共に、チューブ１３内に密閉且つ密着状態の袋状部６が形成される。

【００２２】次いで、この袋状部６にシール液を規定量注入することにより、図７に示すようなインナライナ５内周面にシール液層Ｓを配設したタイヤＴが得られる。

【００２３】本発明は上記実施例に限定されるものではなく、その要旨を逸脱しない範囲で種々の設計変更が可能である。例えば袋状部の内周壁にシール液注入弁を付設することもできる。

【００２４】

【発明の効果】以上のように本発明によれば、タイヤの加硫成形時にトレッドの内側に対向面を密着させた袋状部を形成し、加硫成形後、その袋状部にシール液を注入してシール液層を形成するので、タイヤの加硫成形時に形成される密着状態の袋状部にはガスが発生しない。そしてこの袋状部にシール液を注入することにより、ガスを含まない自封性の高いシール液層を得ることができる。しかも、使用するシール液は、タイヤの加硫成形時の熱を考慮することなく自由に選定することができる。

【図面の簡単な説明】

【図１】本発明の第１実施例の方法で製造したタイヤを、リムへの装着状態で示した縦断面図

【図２】図１のタイヤの加硫成形完了時の状態を示す縦断面図

【図３】本発明の第２実施例の方法で製造したタイヤを、リムへの装着状態で示した縦断面図

【図４】図３のタイヤの加硫成形完了時の状態を示す縦断面図

【図５】本発明の第３実施例の方法で製造したタイヤを、リムへの装着状態で示した縦断面図

【図６】図５のタイヤの加硫成形完了時の状態を示す縦断面図

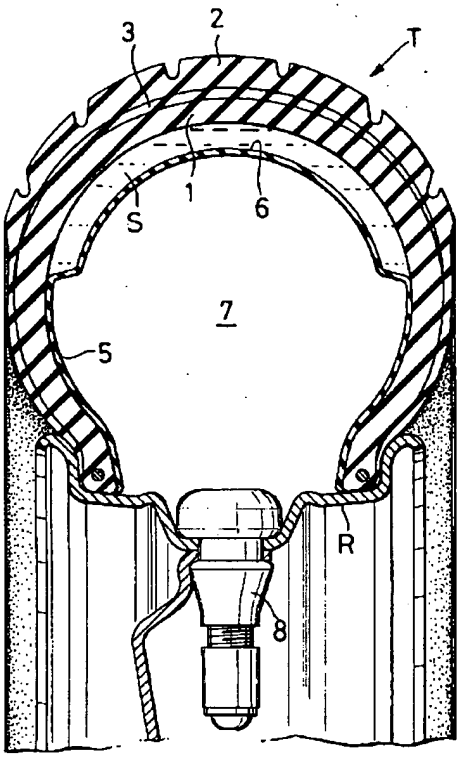
【図７】本発明の第４実施例の方法で製造したタイヤを、リムへの装着状態で示した縦断面図

【図８】図７のタイヤの加硫成形完了時の状態を示す縦断面図

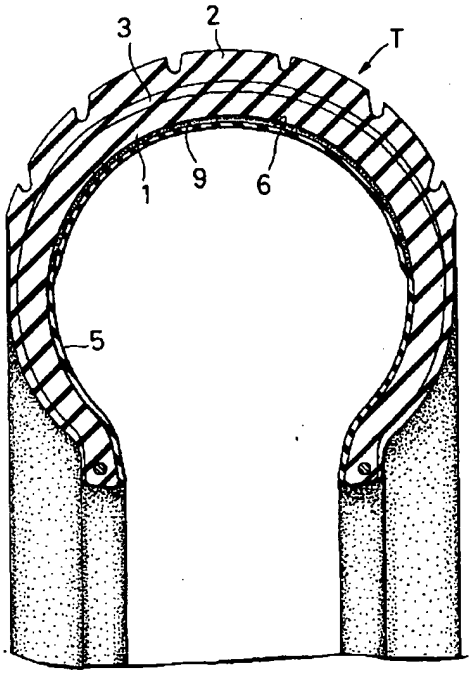
【符号の説明】

Ｓ　シール液層
Ｔ　タイヤ
２　トレッド
６　袋状部

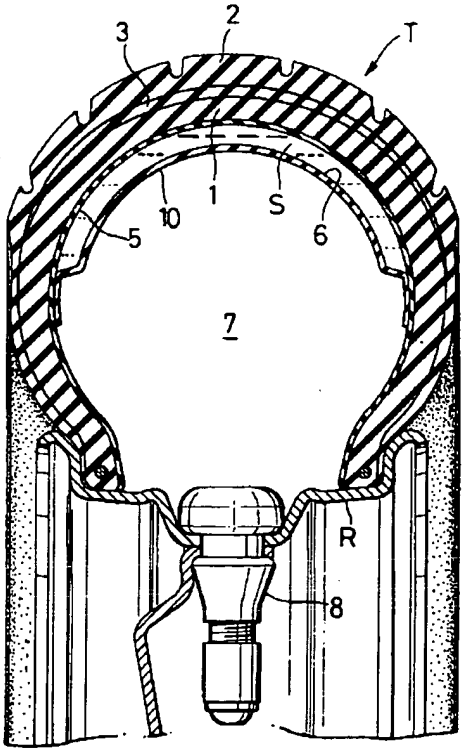
【図1】



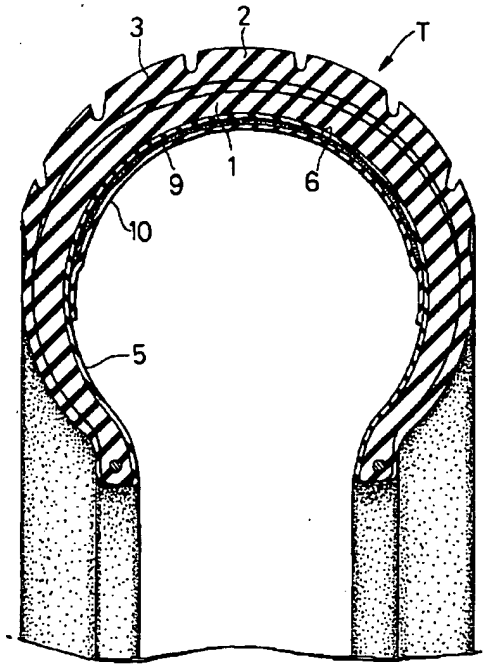
【図2】



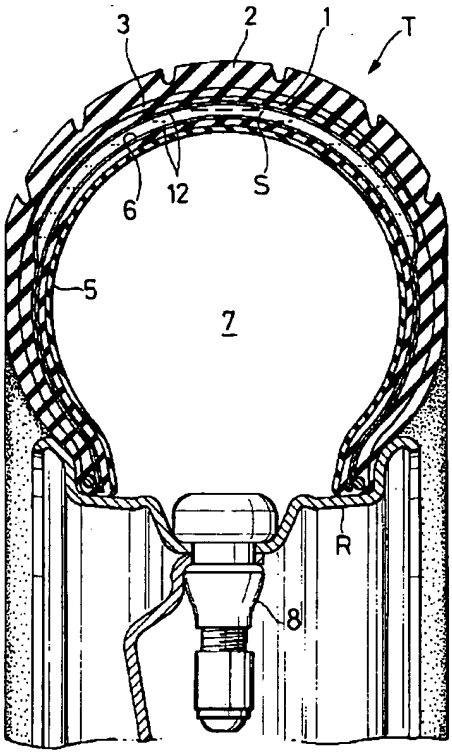
【図3】



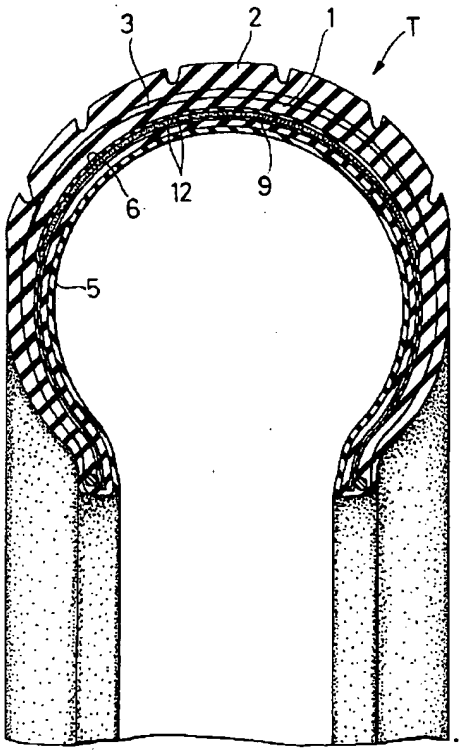
【図4】



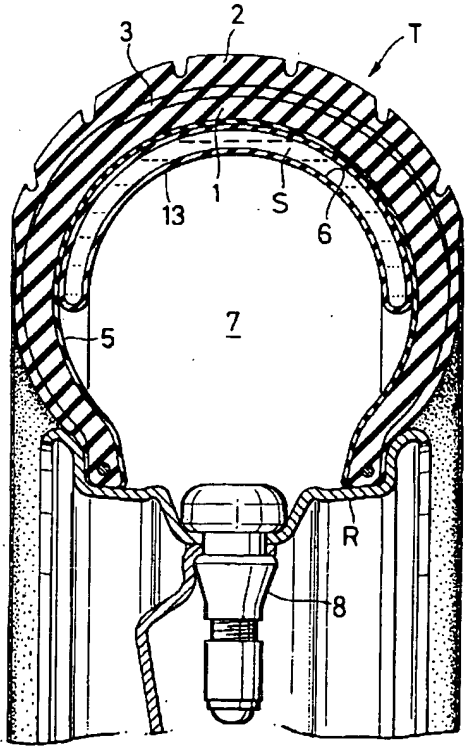
【図5】



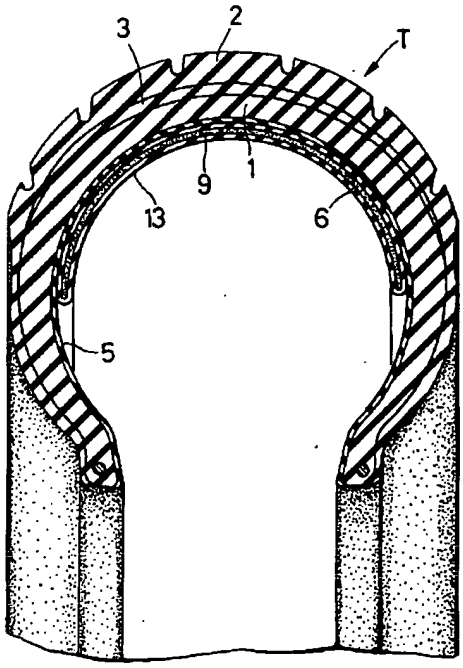
【図6】



【図7】



【図8】



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CLAIMS

[Claim(s)]
[Claim 1] It is the manufacture approach of the tire with a sealing-liquid layer which arranged the cyclic sealing-liquid layer (S) inside the tread (2). The manufacture approach of the tire with a sealing-liquid layer which forms the saccate section (6) which stuck the opposed face inside the tread (2) at the time of vulcanization shaping of a tire (T), and is characterized by pouring a sealing liquid into the saccate section (6), and forming a sealing-liquid layer (S) after vulcanization shaping.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention arranges a cyclic sealing-liquid layer inside a tread, self-** the stab of the tread by a nail etc. with the sealing liquid of a sealing-liquid layer, and relates to the manufacture approach of a tire with a sealing-liquid layer of having delayed exsorption of the air from a stab as much as possible.
[0002]
[Description of the Prior Art] Conventionally, the thing which made the seal matter layer intervene between the rubber constituent layers as a tire with a seal matter layer which can vulcanize the bilayer arranged in a carcass ply medial surface is known (for example, refer to JP,4-286631,A).
[0003]
[Problem(s) to be Solved by the Invention] Since the seal matter layer in such a tire with a seal matter layer must form in the shaping phase of a raw tire, it generates gas in response to high temperature (about 180 degrees C) at the time of vulcanization shaping of a tire, and there is [a possibility that the gas may have a bad influence not only on the self sealingness of a seal matter layer but on tire engine performance (rigidity, endurance, etc.)]. Moreover, as for a seal matter layer, the component blended in order to acquire the physical properties also has a possibility that the heat at the time of said vulcanization shaping may receive bad influences, such as deterioration, the place where it is required that the viscosity stabilized always comparatively low should be maintained in order to demonstrate self sealingness always good irrespective of the height of the service temperature of a tire.
[0004] This invention aims at offering the manufacture approach of the tire with a sealing-liquid layer in which free selection of a sealing liquid is possible, without having been made in view of ********, and not having a bad influence on the self sealingness or the tire engine performance of the sealing liquid using the sealing liquid poured into formation of a sealing layer at the saccate section and it, and taking into consideration the heat at the time of vulcanization shaping.
[0005]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention is characterized by forming the saccate section which stuck the opposed face inside the tread at the time of vulcanization shaping of a tire, pouring a sealing liquid after vulcanization shaping and into its saccate section, and forming a sealing-liquid layer.
[0006]
[Function] According to the above-mentioned description, at the time of vulcanization shaping of a tire, since the saccate section is in an adhesion condition, gas does not generate it inside. And after vulcanization shaping, since a sealing liquid is poured into the saccate section of an adhesion condition, a sealing-liquid layer with the high self sealingness which does not contain gas can be obtained, and it becomes usable [a desired sealing liquid], without moreover taking into consideration the heat at the time of vulcanization shaping.
[0007]

[Example] Hereafter, a drawing explains the example of this invention.
[0008] It explains from the 1st example of this invention first shown in drawing 1 and drawing 2 . Drawing 1 shows the structure of the tire with a sealing-liquid layer manufactured by this invention approach. In this drawing, Tire T is a tubeless mold and shows the tread which 1 sandwiches a carcass into the periphery, and 2 sandwiches a breaker 3, and is formed. Between a carcass 1 and the inner liner 5 joined to the inner skin, the sealed cyclic saccate section 6 which carries out abbreviation correspondence and spreads to the breadth of a tread 3 is formed, a sealing liquid is poured into the interior, and the cyclic sealing-liquid layer S is formed.
[0009] When the wheel rim R is equipped with this tire T, an air chamber 7 is formed between them and this air chamber 7 is filled up with air through the air valve 8 of the wheel rim R.
[0010] It **, and during transit of a car, if a nail etc. penetrates the tread 2 of Tire T, a carcass 1, the sealing-liquid layer S, etc. and reaches to an air chamber 7, the stab of each part of a tire by a nail etc. is buried by the self-sealing action of the sealing-liquid layer S, and exsorption of the air from a stab can be delayed sharply.
[0011] Now, the manufacture approach of the tire T equipped with the above sealing-liquid layers S is explained.
[0012] First, as shown in drawing 2 , when laying the inner liner 5 on top of the inner skin of a carcass 1 in the forming cycle of a raw tire, the abbreviation breadth field of a tread 2 is covered and the release agents 9, such as talc, are applied to the opposed face of a carcass 1 and the inner liner 5. And if vulcanization shaping of this raw tire is carried out, a carcass 1 and the inner liner 5 will leave the spreading section of a release agent 9, and will paste it up mutually, and the spreading section of a release agent 9 will turn into the saccate section 6 of sealing and an adhesion condition. Therefore, gas has not occurred in this saccate section 6.
[0013] Subsequently, the amount impregnation of conventions of the sealing liquid is carried out at the saccate section 6 using a syringe etc., the saccate section 6 is swollen in predetermined thickness, and the sealing-liquid layer S is formed. In this way, the tire T of drawing 1 is obtained.
[0014] Thus, since a sealing liquid is poured into the saccate section 6 of an adhesion condition and the sealing-liquid layer S is formed after vulcanization shaping of Tire T, the sealing-liquid layer S excellent in the self sealingness which does not contain gas is obtained. And the sealing liquid to be used can select freely the thing of the physical properties for which it wishes, without worrying about deterioration by the heat at the time of vulcanization shaping.
[0015] Next, drawing 3 and drawing 4 explain the 2nd example of this invention. In addition, the same sign as it is given to a last example and a corresponding part among drawing.
[0016] First, as shown in drawing 4 , when laying the subliner 10 on top of the inner skin of the inner liner 5 in the forming cycle of a raw tire, the abbreviation breadth field of a tread 2 is covered and a release agent 9 is applied to those opposed faces. If vulcanization shaping of this is carried out, the saccate section 6 of sealing and an adhesion condition will be formed of the part which applied the release agent 9 between the inner liner 5 and the subliner 10. Subsequently, the tire T which arranged the sealing-liquid layer S in inner liner 5 inner skin as shown in drawing 3 is obtained by carrying out the amount impregnation of conventions of the sealing liquid at this saccate section 6.
[0017] Next, drawing 5 and drawing 6 explain the 3rd example of this invention. In addition, the same sign as it is given to said 1st example and a corresponding part among drawing.
[0018] First, as shown in drawing 6 , in the forming cycle of a raw tire, that a carcass 1 should be constituted, in two or more code layers 12 and 12 --, when carrying out a laminating, the opposed face of the code layers 12 and 12 of a certain two ****** is covered to the abbreviation breadth field of a tread 2, and a release agent 9 is applied. And if vulcanization shaping of this raw tire is carried out, the saccate section 6 of sealing and an adhesion condition will be formed of the code layer 12 of two sheets, and the part which applied the release agent 9 between 12.
[0019] Subsequently, the tire T which arranged the sealing-liquid layer S in the carcass 1 as shown in drawing 5 is obtained by carrying out the amount impregnation of conventions of the sealing liquid at this saccate section 6.

[0020] Next, drawing 7 and drawing 8 explain the 4th example of this invention. In addition, the same sign as it is given to said 1st example and a corresponding part among drawing.
[0021] First, as shown in drawing 8 , in the forming cycle of a raw tire, a release agent 9 is applied to the whole inside, and the tube 13 made of vulcanized rubber crushed so that a phase opposed face might stick is continued and laid on top of the inner skin of the inner liner 5 to the abbreviation breadth field of a tread 2. If vulcanization shaping of this raw tire is carried out, while pasting up a tube 13 on the inner liner 5, the saccate section 6 of sealing and an adhesion condition will be formed in a tube 13.
[0022] Subsequently, the tire T which arranged the sealing-liquid layer S in inner liner 5 inner skin as shown in drawing 7 is obtained by carrying out the amount impregnation of conventions of the sealing liquid at this saccate section 6.
[0023] Design changes various in the range which is not limited to the above-mentioned example and does not deviate from the summary are possible for this invention. For example, a sealing-liquid impregnation valve can also be attached to the inner circle wall of the saccate section.
[0024]
[Effect of the Invention] Since the saccate section which stuck the opposed face inside the tread at the time of vulcanization shaping of a tire is formed, a sealing liquid is poured after vulcanization shaping and into its saccate section and a sealing-liquid layer is formed according to this invention as mentioned above, gas does not occur in the saccate section of the adhesion condition formed at the time of vulcanization shaping of a tire. And by pouring a sealing liquid into this saccate section, a sealing-liquid layer with the high self sealingness which does not contain gas can be obtained. And the sealing liquid to be used can be selected freely, without taking into consideration the heat at the time of vulcanization shaping of a tire.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] Drawing of longitudinal section having shown the tire manufactured by the approach of the 1st example of this invention in the state of wearing to a rim
[Drawing 2] Drawing of longitudinal section showing the condition at the time of the completion of vulcanization shaping of the tire of drawing 1
[Drawing 3] Drawing of longitudinal section having shown the tire manufactured by the approach of the 2nd example of this invention in the state of wearing to a rim
[Drawing 4] Drawing of longitudinal section showing the condition at the time of the completion of vulcanization shaping of the tire of drawing 3
[Drawing 5] Drawing of longitudinal section having shown the tire manufactured by the approach of the 3rd example of this invention in the state of wearing to a rim
[Drawing 6] Drawing of longitudinal section showing the condition at the time of the completion of vulcanization shaping of the tire of drawing 5
[Drawing 7] Drawing of longitudinal section having shown the tire manufactured by the approach of the 4th example of this invention in the state of wearing to a rim
[Drawing 8] Drawing of longitudinal section showing the condition at the time of the completion of vulcanization shaping of the tire of drawing 7
[Description of Notations]
S Sealing-liquid layer
T Tire
2 Tread
6 Saccate Section

[Translation done.]